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Original Article

A cross-Sectional survey of the general population regarding awareness about skin cancer in the central India

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ABSTRACT:

Introduction: Skin cancer is a condition characterized by the abnormal growth of skin cells, often triggered by damage from ultraviolet (UV) radiation, such as from sunlight or tanning beds. It is one of the most prevalent forms of cancer worldwide. Skin cancer typically manifests as unusual changes in the skin's appearance, such as new moles, growths, or changes in existing moles. Early detection and treatment are crucial for managing skin cancer effectively. This study aimed to assess awareness and perception about skin cancer among general population.

Methods and Material: A Cross-sectional study was conducted among general population from central India. With purposive sampling technique, which contained three main parts is demographical characteristics and structured questionnaires and standardized perception scale based on craniotomy complication. Data were analyzed using SPSS, version 29.0.

Results: The study assessed Knowledge and Perception regarding skin cancer among rural community members, finding that 57.8% had poor Knowledge, with only 2.2% demonstrating excellent Knowledge. The mean knowledge score was 3.01, with a standard deviation of 1.13. Perception was also evaluated, with 50% having poor Perception and a mean perception score of 22.41 with a standard deviation of 9.6. Gender differences were not significant in both knowledge and perception scores. Age was not associated with variations in knowledge or perception levels. However, education level showed a significant impact, with those with secondary Education scoring highest in both Knowledge and Perception. Occupation also influenced scores, with private employees exhibiting higher Knowledge and perception levels than others.

Conclusions: In conclusion, the study conducted in the central India revealed poor Knowledge and Perception regarding skin cancer among residents. With over half of the participants demonstrating inadequate Knowledge and half having poor perceptions, there is a clear need for interventions to improve awareness and understanding of skin cancer in this population.

How to Cite

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Key-words: Knowledge, Perception, Skin cancer, Rural, Community

INTRODUCTION:

Skin cancer accounts for less than 1% of all cancers diagnosed in India. According to reports, SCC is the most common type of skin cancer in India, whereas BCC is the most common cutaneous malignancy worldwide (1)

Although the incidence of skin cancer is comparatively lower in India than in the West (2), the country's greater population base is thought to account for a significant number of occurrences overall.

Although BCC is the most frequent kind of skin cancer globally, numerous Indian studies have consistently indicated SCC as the most common skin malignancy (1). In India, skin cancer accounts for less than 1% of all diagnosed cancers.

Despite India's lower incidence of skin cancer than the western world (2), the country's greater population base is thought to account for a significant absolute number of incidents.

Due to the protective impact of melanin, it is believed that Indians have a lower incidence of all types of skin cancers; nonetheless, there are a number of smaller findings suggesting that NMSCs may be increasing in India (3).

Melanin's preventive action is thought to be the reason why Indians have a lower incidence of all types of skin cancer. There are a number of minor papers suggesting that NMSCs may be increasing in India, despite the lack of cross-country statistics and national surveys in that country (3).

Over the course of a year, a considerable number of patients with skin tumors have presented to our institution's plastic surgery department, where they have undergone necessary excision and reconstructive procedures. In a similar vein, a considerable number of new instances are reported when reviewing oncological registrations. According to a study conducted in a hospital in this area, there is a paradoxical upward trend in BCC with a preference for women (4).

Cancer is a disease in which cells in the body grow out of control. When cancer starts in the skin, it is called skin cancer (5). Skin cancer is the most common cancer in the United States. Some people are at higher risk of skin cancer than others, but anyone can get it. The most preventable cause of skin cancer is overexposure to ultraviolet (UV) light from the sun or artificial sources like tanning beds (6).

Cancer that forms in the tissues of the skin. There are several types of skin cancer. Skin cancer that forms in melanocytes (skin cells that make pigment) is called melanoma (7). Skin cancer in the lower part of the epidermis (the outer layer of the skin) is called basal cell carcinoma. Skin cancer that forms in squamous cells (flat cells that form the skin's surface) is called squamous cell carcinoma. Skin cancer that forms in neuroendocrine cells (cells that release hormones in response to signals from the nervous system) is called neuroendocrine carcinoma of the skin (8). Most skin cancers form in older people on body parts exposed to the sun or in people with weakened immune systems (9).

Although there are several types of skin cancer, the most aggressive form is melanoma (10). This skin cancer involves mass replication of pigment-producing melanocyte cells, which are located in the epidermis below the basal layer. There are several factors involved with the onset of melanoma, including exposure to ultraviolet rays, genetic predisposition, numerous nevi (moles), immunosuppression, and environmental exposure to carcinogens (11).

Several epidemiologic studies have shown an increasing incidence of both NMSC and melanoma over the past several decades. Diagnosing and

Corresponding Author's: Shakib Sheikh

treating these neoplasms represent a significant health problem concerning patient well-being and healthcare expenditures. Skin cancers are frequently located on the sun-exposed head and neck regions, which can result in significant morbidity during their diagnosis and treatment (12)

Treatment options include surgical excision, cryotherapy, chemotherapy, immunotherapy, and radiation. Proper sun safety (i.e., sunscreen) is paramount to prevent skin cancer (13).

Material and Method:

A Cross-sectional study was conducted among general population from central India (Wardha district, Maharashtra) was conducted between November 2023 and march 2024. People who are interested willing to participate in the study and who know the Marathi, Hindi and English language are eligible to participate and only exclusion criterion was that of those who refused to participate. The study was conducted through a cross sectional survey research approach among general population from central India.We using Student's t-test and Chi-square Test to determine our study sample size. With margin of error of 5% and a level of confidence of 95%, the calculate minimum size was 90 people. Purposive sampling was used to recruit participants.Tools, including a structured questionnaire and a standardized perception scale, were developed based on theoretical Knowledge, experience, expert guidance, and literature review regarding skin cancer patients. Tools, including a structured questionnaire and a standardized perception scale, were developed based on theoretical Knowledge, experience, expert guidance, and literature review regarding skin cancer patients. A pilot study was conducted among 10 peoples from study sample, and found that both questionnaire and Perception scale had acceptable reliability (0.9468for both).The data were keyed in and analyzed using SPSS statistics for windows version 29. Demographic data will be analyzed using frequency and percentage, presented through tables and graphs. Additionally, unpaired t-tests and one-way ANOVA tests will assess the Association between Knowledge and Perception concerning skin cancer.

RESULT:

Distribution of people with regard to demographic variables

A purposive sampling technique was used, and 90 samples were drawn from the study population from selected areas. The data obtained to describe the sample characteristics including Gender, Age, Marital Status, Education, Occupation, and family history of Skin cancer

Corresponding Author's: Shakib Sheikh

Table no. 1 shows the percentage-wise distribution of people in rural communities according to their demographic area.

N=90

Demographic Details	No. of Patient	Percentage%
Gender		
Male	52	57
Female	38	41
Gender		
46-50Years	2	2.2
51-55Years	50	54.9
56 and above	38	41.8
Marital Status		
Married	79	86.8
Divorced	1	1.1
Separated	10	11
Education		
Illiterate	13	14.3
Primary Education	35	38.5
Secondary Education	41	45.1
Higher Secondary Education	1	1.1
Occupation		
Private Employment	22	24.2
Government Employment	19	20
labor	49	53.8

Table no.1 shows 52 males, which is 57%, and 38 females 41% present in the study; 2% of patients present in the 46-50 years age group, 54.9% of patients present in 51-55 years of age group, 41.8% patient in 56 and above years of age group.86% that is 79 people are Married 11% that is 10 people are Separated, and 1% people are divorced. 14.3%, that is, 13 people are illiterate,38.5% of people, that is, 35 people, have completed their primary Education, whereas peoples45% have completed their secondary Education, and only 1% of people have completed their highersecondaryEducation.24%ofpeopleare working in privateemployment,20% of people are working in the government sector, and 53.8% of people are working as laborers. There is no individual who has a family history of Skin cancer 90; that is, 98.9% of people do not have any history of skin cancer.

Assessment level of Knowledge and Perception regarding skin cancer among people in rural communities.

This Section deals with the assessment level of Knowledge and Perception regarding skin cancer among people in rural communities. The level of knowledge scores is according to a structured questionnaire administered to the people divided into the following sections: Poor,

Corresponding Author's: Shakib Sheikh

Average, Good, Very Good, and Excellent.

Table No.2 Assessment level of Knowledge regarding skin cancer among people in a rural community

N=90

Level of Knowledge	Score Range	No of Student	Percentage
Poor	0-40%	52	57.8
Average	41-60%	16	17.8
Good	61-75%	14	15.6
Very Good	76-90%	6	6.7
Excellent	91-100%	2	2.2
Minimum	1		
Maximum	6		
Mean score	3.01±1.13		
Mean percentage score	20.07±7.57		

Table no.2 shows the level of Knowledge of skin cancer in that 57.8% of people have Poor Knowledge, 17.8% of people have Average Knowledge, 15.6% of people have a good level of Knowledge, 6.7% of people have a very good level of Knowledge, and 2.2% of people having Excellent level of Knowledge on skin cancer. In contrast, the minimum score of Knowledge was one, and the maximum score was 6; the mean score was 3.01, and the standard deviation was 1.13.The mean percentage score is 20.07.

Table 3. Assessment level of Perception regarding skin cancer among people in rural communities.

N=90

Level of Perception	Score Range	No of People	Percentage
Poor Perception	10 to 19	45	50
Average Perception	20-29	21	23.33
Good Perception	30-39	19	21.11
Very Good Perception	40-50	5	5.56
Total		90	100
Minimum	10		
Maximum	42		
Mean Score	22.41±9.6		
Mean Percentage	44.82±19.2		

Corresponding Author's: Shakib Sheikh

Table no.3 shows the level of skin cancer perception: 50% of people have PoorPerception, 23.33%of people have AveragePerception, 21.11% have Good Perception, and 5.56%have very good Perception of skin cancer. In contrast, the minimum score of Knowledge was 10, and the maximum score was 42; the mean score was 22.41, and the standard deviation was 9.6. The mean percentage score is 44.82.

Association between Level of Knowledge and Perception of skin cancer among people in rural community

Table No 4. Association of Level of Knowledge and Perception about Gender.

Variable	Gender	No. of People	Mean Knowledge Score	F=value	P=Value
Total Knowledge Level	Male	52	2.98±1.09	0.087	0.04 NSp<0.05
	Female	38	3.05±1.20		
Total Perception level	Male	52	21.98±9.86	0.245	0.02 NSp<0.05
	Female	38	23±9.36		

Table no.4 shows that An Independent sample t-test found significant differences between males and females on total Knowledge and total perception scores (p>0.05). As shown in Table No.4, males demonstrate a mean knowledge of 2.98 (SD=1.093) compared to 3.05 (SD=1.20) for females. Likewise, total Perception was similar, with a mean of 21.98 (SD=9.86) for males and females with 'F', i.e., 0.087 at 5% of the level of significance. Hence, it is interpreted that the patient's Age is associated with their level of Knowledge and Perception.

Corresponding Author's: Shakib Sheikh

Table No.5 Association of Level of Knowledge and Perception about Age.

Variables	Age(years)	No. of People	Mean Knowledge Score	SD Total Knowledge	F=value	P=Value
Level of Knowledge	46-50	2	3.06	0.70	.0265	0.768 NSp<0.05
	51-55	50	3.06	1.15		
	56 and above	38	2.97	1.15		
Level of Perception	46-50	2	18.50	12.02	0.29	0.744 NSp<0.05
	51-55	50	22.96	9.33		
	56 and above	38	21.89	10.0		

Table no.5 shows that One Way ANOVAs found non-significant differences in total Knowledge or Perception of skin cancer across age groups, F (2,87) =0.265, p=0.768 and F= (2,87) = 0.297, p=0.744, respectively. Mean total knowledge scores were similar across the 46-50 years (M=2.50, SD= 1.150) age group. Likewise, total perception scores did not significantly differ between the 46- 50 years (M=18.50, SD=12.02), 51-55 years (M=22.96, SD=9.33), and 56 and above (M=21.89, SD=10.8) groups. Together, these results suggest that Age was not associated with differences in skin cancer knowledge or Perception among people in rural communities

Table No.6 Association of Level of Knowledge and Perception about Education.

Variables	Education	No. of People	Mean Knowledge Score	SD Total Knowledge	F=value	P=Value
Level of knowledge	Illiterate	13	3.0	1.0	0.312	0.04 NS p<0.05
	Primary Education	35	2.97	1.24		
	Secondary Education	41	3	1.04		
	Graduation And above	1	2.0			
Level of Perception	Illiterate	13	22.85	8.81	0.166	0.01 NS p<0.05
	Primary Education	35	21.60	9.84		
	Secondary Education	41	26.0	9.84		
	Graduation And above	1	22.41			

Corresponding Author's: Shakib Sheikh

Table no.6 shows that the difference in mean total scores between the education groups was statistically significant, F (3,86), =0.312, p=0.004. The mean total knowledge score was highest among those with secondary Education (M= 3.07, SD=1.104) and the lowest for those with graduation and above (M=2.00). Similarly, there were statistically significant differences in total perception scores between education levels, F (3, 86) =1.66, p= 0.01. Perception score (M= 26.00), while those with primary Education had the lowest (M=21.60, SD=9.840). Hence, there were statistically significant in total perception scores between educational levels.

Table No.7 Association of level of Knowledge and Perception in relation to Occupation.

Variables	Occupation	No. of People	Mean Knowledge Score	SD Total Knowledge	F=value	P=Value
Level of knowledge	Private Employment	22	3.36	1.21	3.044	0.038 NS p<0.05
	Government Employment	19	2.47	1.124		
	Labor	49	3.06	1.049		
Level of Perception	Private Employment	22	26.68	10.44	0.266	0.043 NS p<0.05
	Government Employment	19	22.32	7.60		
	Labor	49	20.53	9.472		

Table no.7 shows that there was a significant difference between Occupations (F=3.044, p=0.038). Post-hoc comparisons using Tukey's HSD test indicated the mean knowledge score for the private employment group (M=3.36, SD=1.124). However, there were no significant differences between the other groups. Similarly, a statistically significant difference was found between the occupation group for perception Score (M=26.68, SD=10.44) compared to the labor group (M=20.53, SD=9.472).

DISCUSSION:

The findings of this study reveal significant gaps in Knowledge and Perception regarding skin cancer among rural residents, with a majority demonstrating poor Knowledge (57.8%) and Perception (50%). These results are consistent with previous research highlighting insufficient awareness of skin cancer in various populations (14). For example, studies in both developed and developing countries have reported similar findings, indicating a widespread lack of understanding about skin cancer despite its prevalence.

Corresponding Author's: Shakib Sheikh

However, it is worth noting that while the study confirms the hypothesis that knowledge and perception levels are generally low, it also identifies factors that influence these levels, such as education level and Occupation. This adds nuance to our understanding of the issue, as it suggests that targeted interventions tailored to specific demographics, such as those with lower educational attainment or different occupational backgrounds, may be effective in improving Knowledge and Perception.

Regarding the aggressive nature of melanoma, which is the focus of this study, our findings align with existing literature emphasizing the importance of early detection and prevention. Melanoma (15), being the most aggressive form of skin cancer, underscores the critical need for increased awareness and Education, especially in rural areas where access to healthcare resources may be limited.

Additionally, the discussion on genetic predisposition to skin cancer, while not directly assessed in this study, highlights the complexity of the disease. Future research could explore the role of genetic factors in skin cancer incidence, especially in populations with a high prevalence of the disease.

The study's focus on the importance of patient education and self-care in maintaining skin integrity post-discharge from the hospital is valuable. It reinforces the idea that improving Knowledge about skin cancer not only aids in prevention but also contributes to better patient outcomes and quality of life.

Overall, this study contributes to our understanding of Knowledge and Perception regarding skin cancer in rural populations. While confirming the hypothesis of low Knowledge and perception levels, it also provides insights into potential interventions to address these issues. By implementing targeted educational programs and emphasizing the importance of early detection and prevention, healthcare services can make significant strides in reducing the burden of skin cancer in rural communities.

CONCLUSION:

In conclusion, the study sheds light on the knowledge and perception levels regarding skin cancer among rural residents in the central India community. The findings reveal a concerning lack of awareness, with a majority (57.8%) demonstrating poor Knowledge and only a small percentage (2.2%) possessing excellent Knowledge. Similarly, 50% of participants exhibited poor Perception of skin cancer. These results underscore the urgent need for educational interventions to improve understanding and awareness of skin cancer in rural communities. By addressing this gap in Knowledge, interventions can promote early detection and preventive measures, ultimately reducing the burden of skin cancer.

Overall, these findings emphasize the importance of tailored educational interventions in rural communities, particularly among those with lower educational attainment and specific occupational backgrounds. Such interventions can increase Knowledge and awareness of skin cancer and promote early detection and preventive behaviors, ultimately contributing to improved health outcomes in rural populations. This study lays the groundwork for further research and the development of effective interventions to address the challenge of skin cancer in rural areas.

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Conflict of Interest
"The authors declare no conflicts of interest".

Author Contribution
The author contributed to the research article by developing the study framework, collecting data, conceptualizing the study, designing the methodology, preparing the draft manuscript, analyzing data, and presenting the results.

Ethical considerations
The study was approved by the Institutional Ethics Committee. IEC approval No. DMIMS (DU)/IEC/Dec-2019/8687.when we do the data collection procedure we taking consent form from to individual participant.

Data Availability: Not Applicable

Abbreviation:
SPSS-Statistical Package for the Social Sciences (SPSS)

SCC-Squamous cell carcinoma (SCC)

BCC-Basal cell carcinoma (BCC)

NMSC-Non-melanoma skin cancer

ANOVA-Analysis of Variance

SD-Standard Deviation

DMIHER-DattaMeghe Institute of Higher Education & Research

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